**DEPARTMENT OF THE ARMY**
**Wilmington District, Corps of Engineers**
**Post Office Box 1890**
**Wilmington, North Carolina 28402-1890**

Action ID No. 200330413 February 6, 2003

**PUBLIC NOTICE**

The North Carolina Department of Transportation, Division of Highways, 1548 Mail Service Center, Raleigh, North Carolina 27699-1548, has applied for a Department of the Army (DA) permit TO DISCHARGE DREDGED OR FILL MATERIAL INTO THE WATERS OF TARKILN BRANCH AND UNNAMED TRIBUTARIES, IMPACTING A TOTAL OF 743 LINEAR FEET OF STREAM CHANNEL, ASSOCIATED WITH ROADWAY WIDENING AND PAVING OF 0.81 MILE OF SR 1118 (FRED BREEDLOVE ROAD) FROM SR 1117 TO END OF ROAD NEAR THE LITTLE TENNESSEE RIVER, SWAIN COUNTY, NORTH CAROLINA.

The following description of the work is taken from data provided by the applicant and from observations made during an onsite visit by a representative of the Corps of Engineers. Plans submitted with the application show the proposed widening, grading and paving of the existing unpaved, gravel road to a two-lane, 18-foot-wide paved facility with 5-foot shoulders, and a 3-foot ditch on the cut slope side of the road, on existing alignment. The proposed project would impact Tarkiln Branch and its two small tributaries, at 5 sites along the road corridor. The project will be approximately 0.81 miles in length, and will involve the replacement/extension of an existing 37-foot by 24-inch metal culvert in Tarkiln Branch (a two-foot-wide perennial stream) with a 50-foot by 24-inch metal culvert (Site 1); and the replacement of an existing 20-foot by 18-inch metal culvert with a new 40-foot by 24-inch metal culvert in an unnamed intermittent tributary of Tarkiln Branch (Site 3); and the replacement of an existing 35-foot by 24-inch metal culvert with a new 60-foot by 36-inch metal culvert in a one-foot-wide perennial tributary of Tarkiln Branch (Site 4). A total of 58 linear feet of new, permanent stream channel loss would result from the proposed construction of these culvert replacements and associated filling. In addition, 685 linear feet of Tarkiln Branch at Sites 2A and 2B would be permanently filled to construct the proposed road widening. The stream channel would be relocated, shifted approximately 15 feet south of its existing location, and continue to run along the edge of the new 45-foot road right-of-way of SR 1118. The relocated stream channel is designed as a natural channel, using the existing channel as reference, and would incorporate natural rock vane weirs to provide step pools and grade control in higher sloped reaches, and include stabilization with native vegetation planting and fiber matting. The project would thus result in 58 linear feet of permanent impacts to stream channel from culvert installation at road/stream crossings, and 685 linear feet of impacts to stream channel via filling for road widening. The 685-foot channel relocation of Tarkiln Branch would utilize natural design techniques. As a result, there would be a permanent net loss of 58 linear feet of functional stream channel from the proposed work.

The applicant proposes no mitigation for stream impacts, other than the proposed channel relocation of Tarkiln Branch. The purpose of the proposed work is to improve the roadway to meet current NCDOT secondary road standards as mandated by North Carolina general statute. Plans showing the proposed work are included with this public notice.

The State of North Carolina will review this public notice to determine the need for the applicant to obtain any required State authorization. No Department of the Army (DA) permit will be issued until the coordinated State viewpoint on the proposal has been received and reviewed by this agency, nor will a DA permit be issued until the North Carolina Department of Environment and Natural Resources (NCDENR) has determined the applicability of a Water Quality Certificate as required by PL 92-500.

This application is being considered pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344). Any person may request, in writing within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearing shall state, with particularity, the reasons for holding a public hearing.

The District Engineer has consulted the latest published version of the National Register of Historic Places for the presence or absence of registered properties, or properties listed as being eligible for inclusion therein, and this worksite is not registered property or property listed as being eligible for inclusion in the Register. Consultation of the National Register constitutes the extent of cultural resource investigations by the District Engineer, and he is otherwise unaware of the presence of such resources. Presently, unknown archeological, scientific, prehistorical, or historical data may be lost or destroyed by work under the requested permit.

The District Engineer, based on available information, is not aware that the proposed activity will affect species, or their critical habitat, designated as endangered or threatened pursuant to the Endangered Species Act of 1973.

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. Evaluation of the probable impacts which the proposed activity may have on the public interest requires a careful weighing of all those factors which become relevant in each particular case. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. The decision whether to authorize a proposal, and if so the conditions under which it will be allowed to occur, are therefore determined by the outcome of the general balancing process. That decision should reflect the national concern for both protection and utilization of important resources. All factors which may be relevant to the proposal must be considered including the cumulative effects thereof. Among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards and flood plain values (in accordance with Executive Order 11988), land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving the placement of dredged or fill materials in waters of the United States, a permit will be denied if the discharge that would be

authorized by such permit would not comply with the Environmental Protection Agency's 404(b)(1) guidelines. Subject to the preceding sentence and any other applicable guidelines or criteria, a permit will be granted unless the District Engineer determines that it would be contrary to the public interest.

The Corps of Engineers is soliciting comments from the public; Federal, State and local agencies and officials; Indian Tribes and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment (EA) and/or an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Generally, the decision whether to issue this Department of the Army (DA) permit will not be made until the North Carolina Division of Water Quality (NCDWQ) issues, denies, or waives State certification required by Section 401 of the Clean Water Act. The NCDWQ considers whether or not the proposed activity will comply with Sections 301, 302, 306, and 307 of the Clean Water Act. The application and this public notice for the Department of the Army (DA) permit serves as application to the NCDWQ for certification.

Additional information regarding the Clean Water Act certification may be reviewed at the offices of the 401 Wetlands Certification Unit, North Carolina Division of Water Quality (NCDWQ), 2321 Crabtree Blvd., Raleigh, North Carolina 27604. Copies of such materials will be furnished to any person requesting copies upon payment of reproduction costs.

All persons desiring to make comments regarding the application for Clean Water Act certification should do so in writing delivered to the North Carolina Division of Water Quality Wetlands Section, 1621 Mail Service Center, Raleigh, North Carolina 27626-0621, on or before February 28, 2003, Attention: Mr. John Dorney.

Written comments pertinent to the proposed work, as outlined above, will be received in this office, Attention: Mr. John W. Hendrix, until 5:00 p.m., March 7, 2003, or telephone (828) 271-7980, extension 7.

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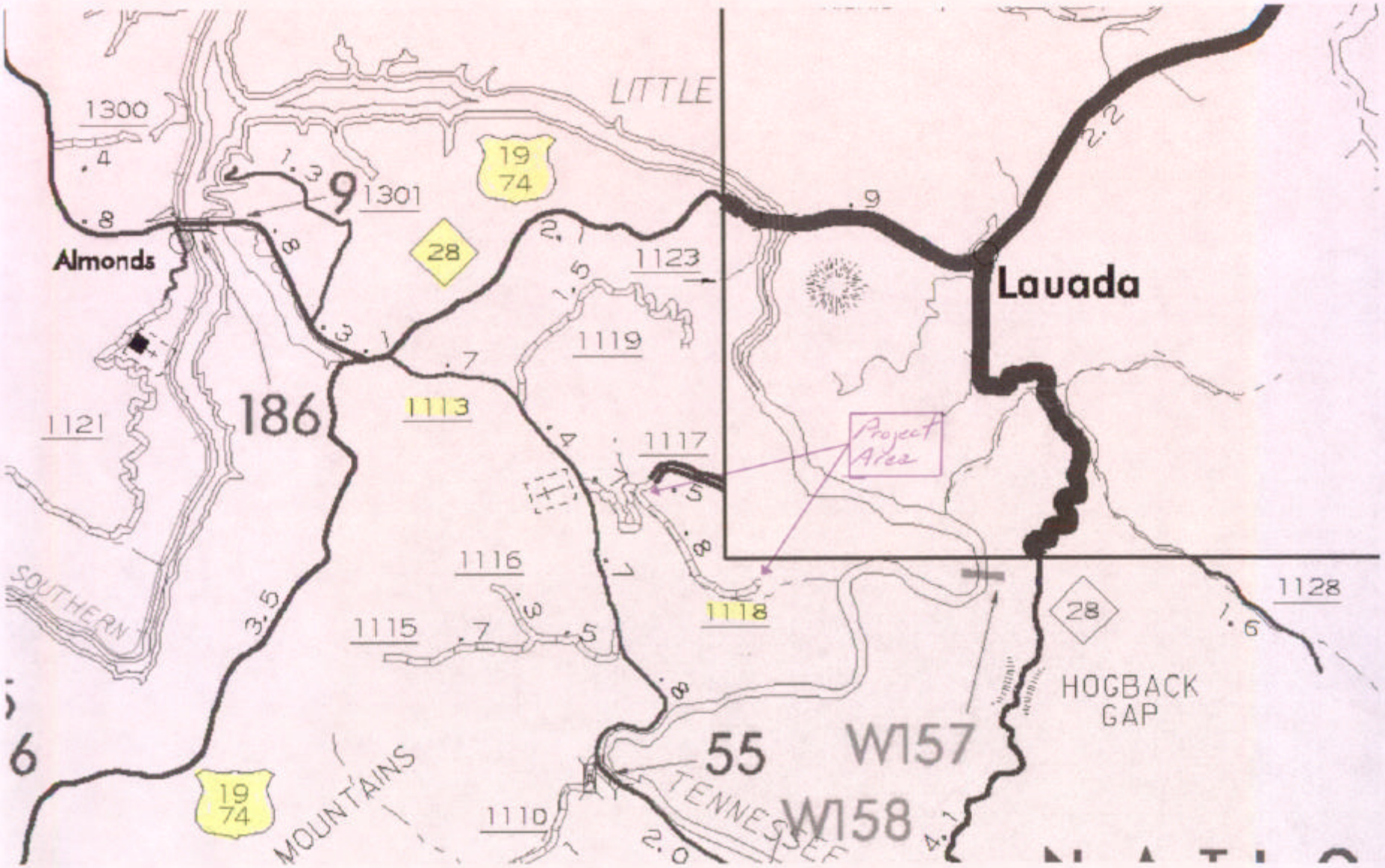



MrSID Viewer

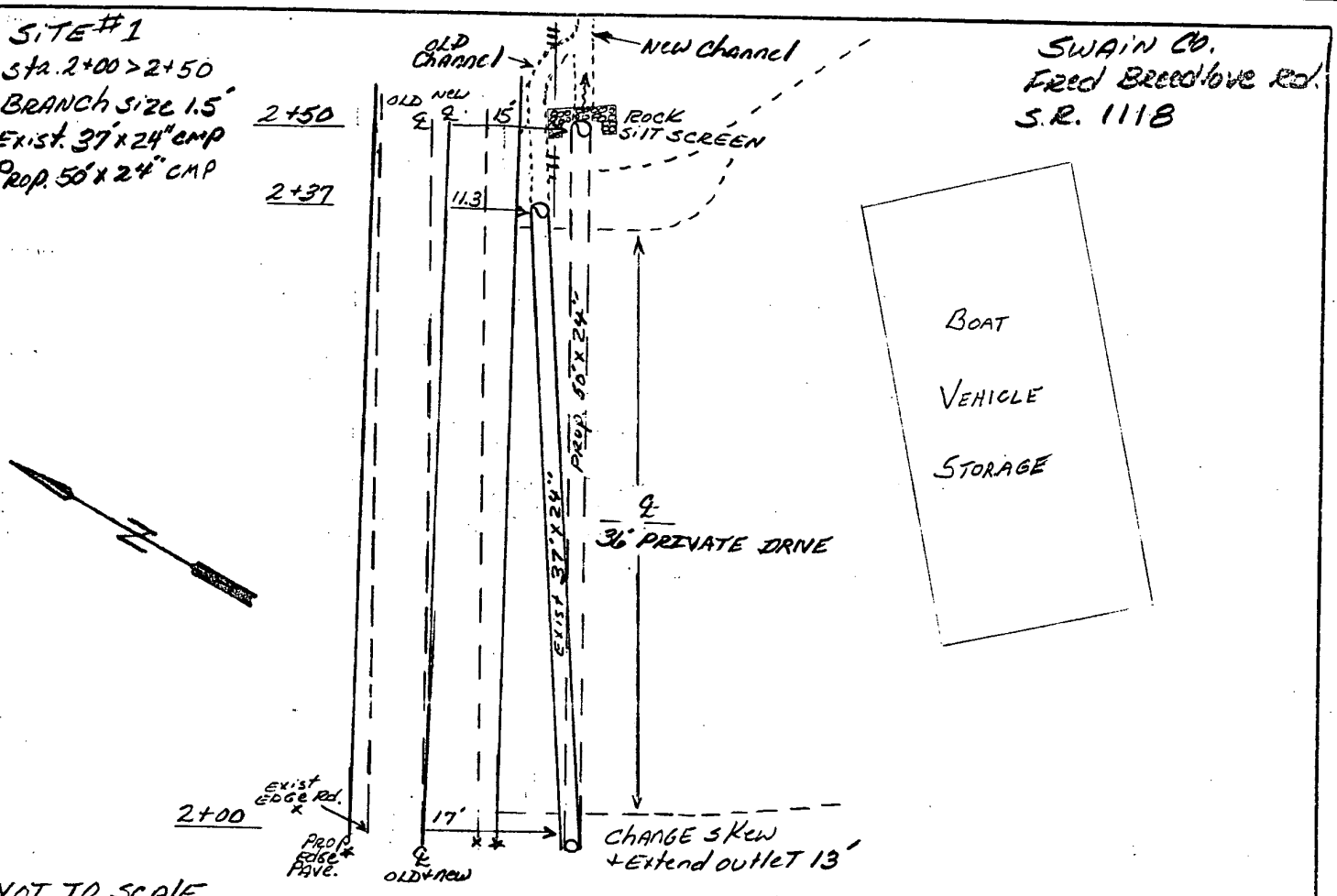
Vicinity Map SR 1118 Fred Breedlove Road Swain County


Name: WESSER
Date: 1/27/2003
Scale: 1 inch equals 1000 feet

Location: 035° 21' 12.0" N 083° 31' 04.5" W
Caption: SR 1118 Fred Breedlove Road
Swain County

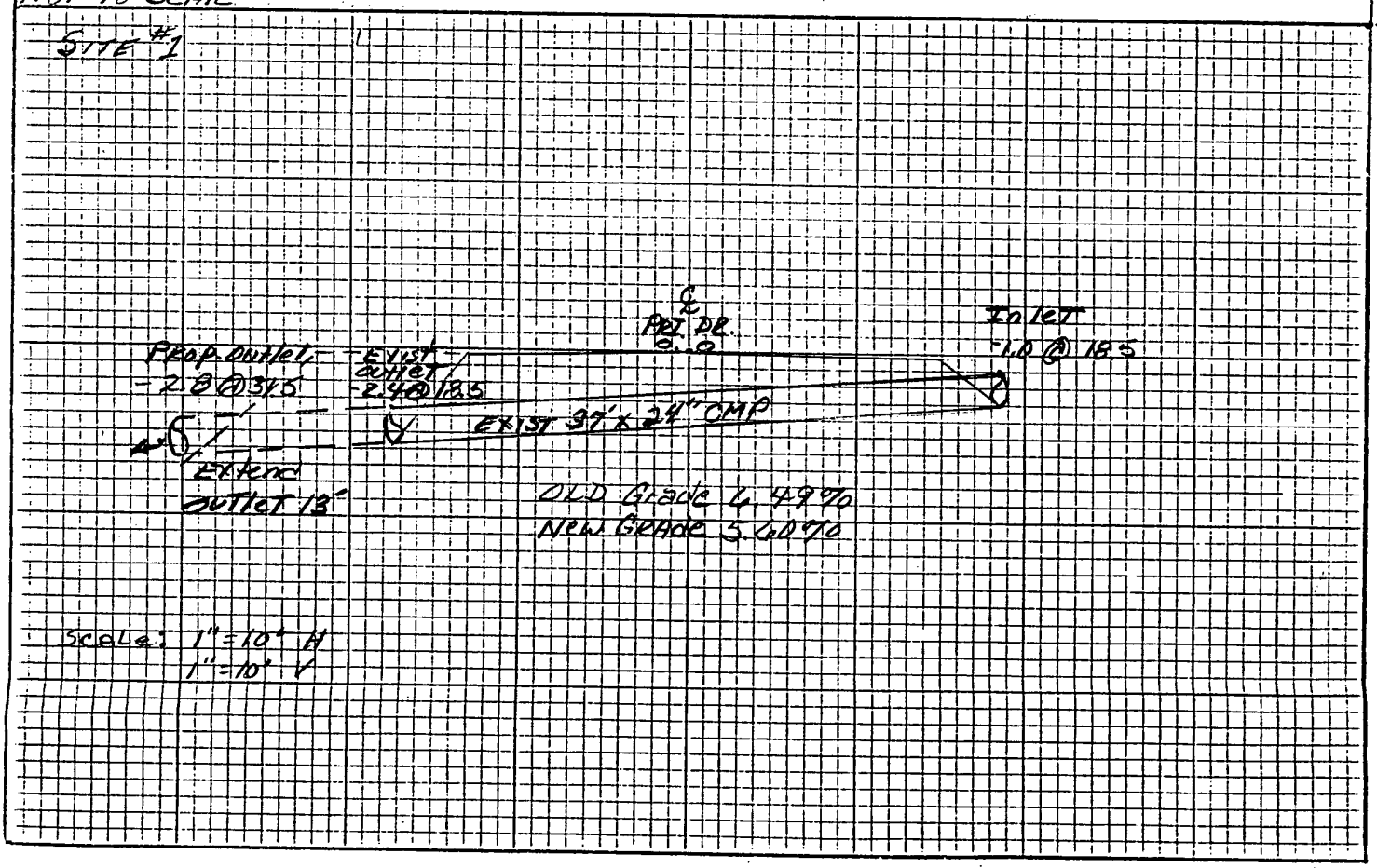
SITE #1
Sta. 2+00 > 2+50
BRANCH SIZE 1.5'
Exist. 37'x24" CMP
Prop. 50'x24" CMP

SWAIN CO.
Fred Breedlove Rd.
S.R. 1118



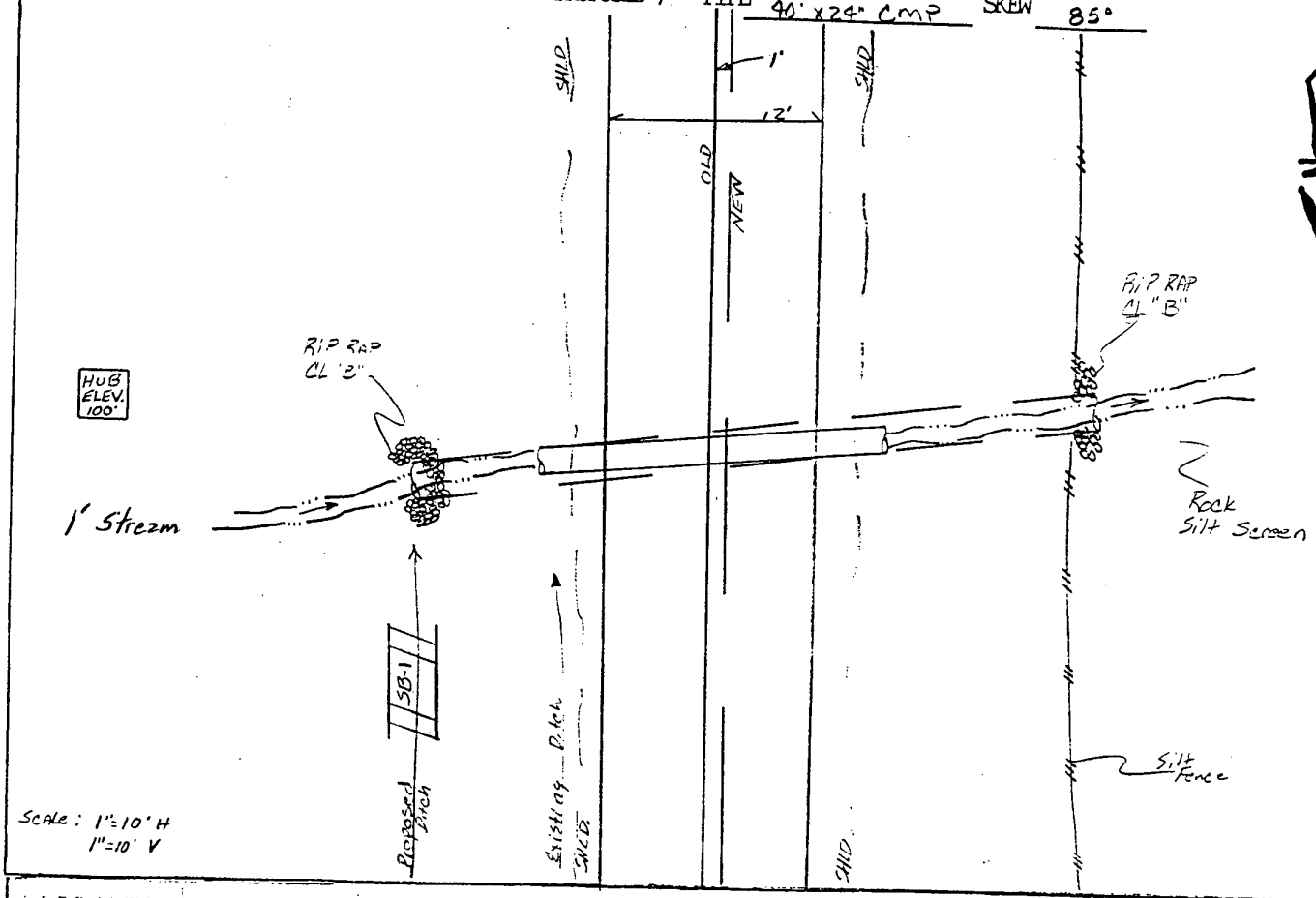

NOT TO SCALE

SITE #1



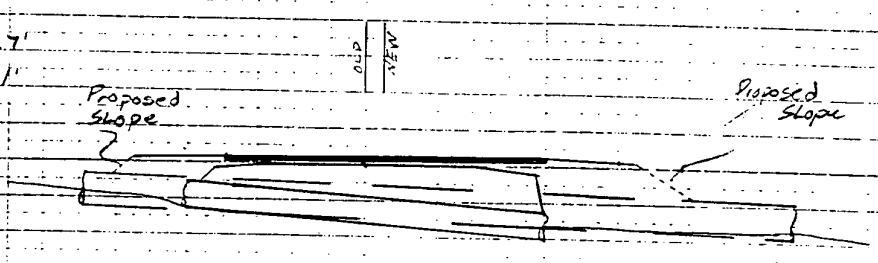
SWAIN CO. Fred Breedlove Rd. SR 1118

SITE # 3 STA. 23+25 BRANCH SIZE 1' EXISTING / PIPE 20"x18" CMP SKEW 85°
PROPOSED / PIPE 40'x24" CMP SKEW 85°




Cross Section Taken on Skew of Culvert

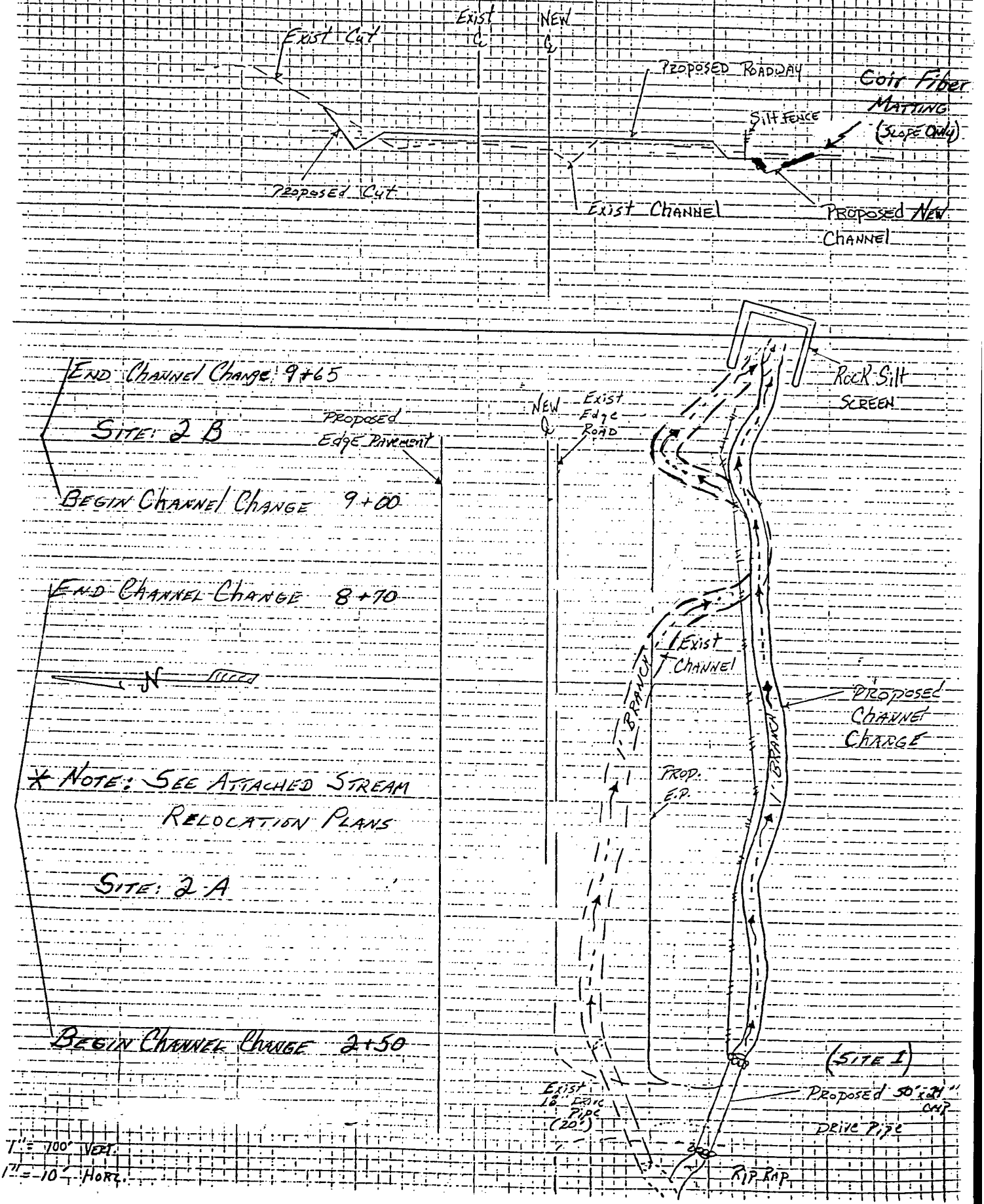
EXISTING CULVERT
INLET FL. ELEV. 96.7'
OUTLET FL. ELEV. 95.1'




EXISTING CULVERT
GR. 8.0%
PROPOSED CULVERT
GR. 2.8%

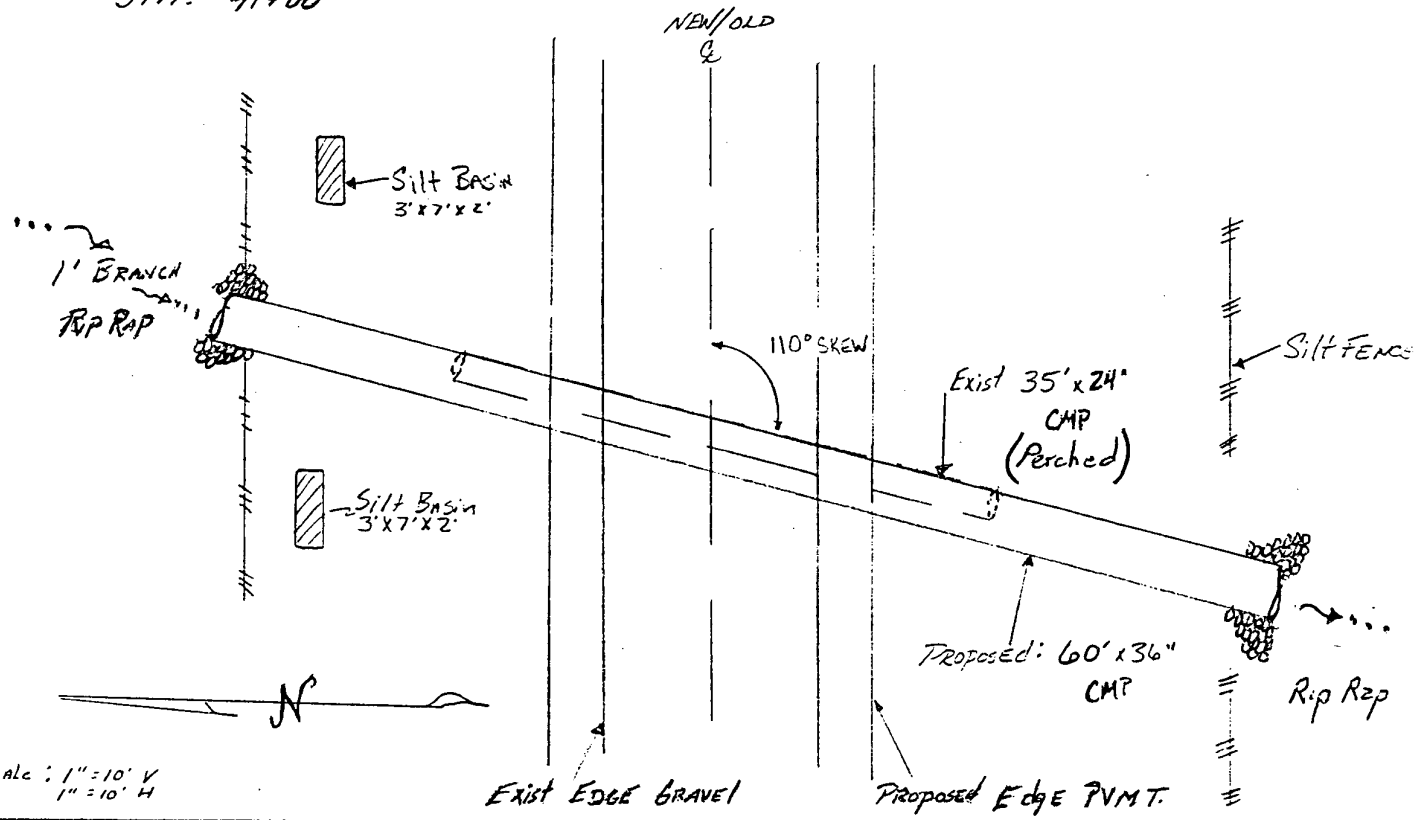
SWAIN Co. FRED BREEDLOVE Rd. SR 1118

Site # 2 A & B



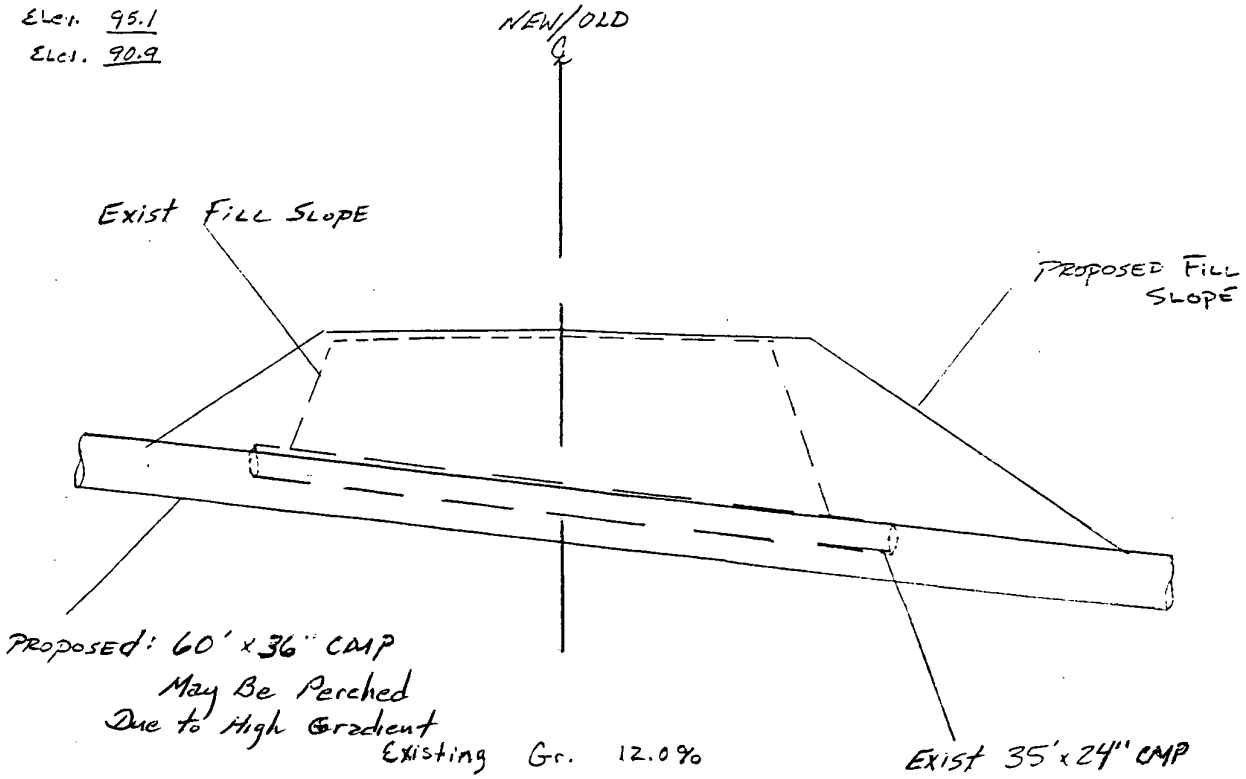
Site #4 FRED BREEDLOVE Rd SR 1118 SWAIN Co.

STA. 41+00




NOTE: HUB 35' LT.
STA 41+40
Elev. 100'

Inlet in Elev. 95.1
Outlet in Elev. 90.9



# Stream Reference Reach Data

| | | | |
|---|---|---|---|
| Project Name: | Fred Breedlove Road - SR 1118 - Tarkiln Branch | Date: | 05/31/02 |
| Stream Name: | Tarkiln Branch | | |
| Basin Name: | Little Tennessee | Drainage Area: | 79 - 99 ACRES |
| Location: | 8 miles west of Bryson City, 1.1 miles south of US 19/74 and 0.7 miles east of SR 1113 | | |
| Collection Date: | 05/20/02 | | |
| Data collected by: | Kenneth McDowell, Jason Tilley, Ed Cabe, Harold Gribble, Mark Davis, Paul White | | |

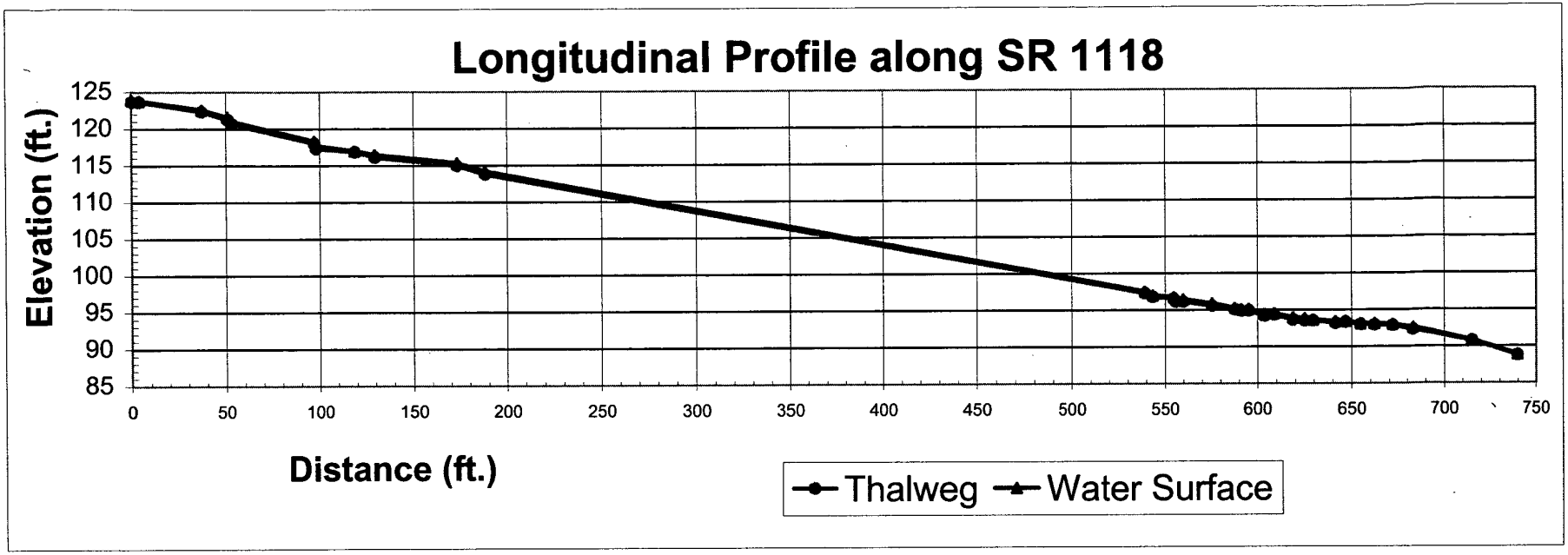
## Summary of Stream Impairment and Restoration Goals:

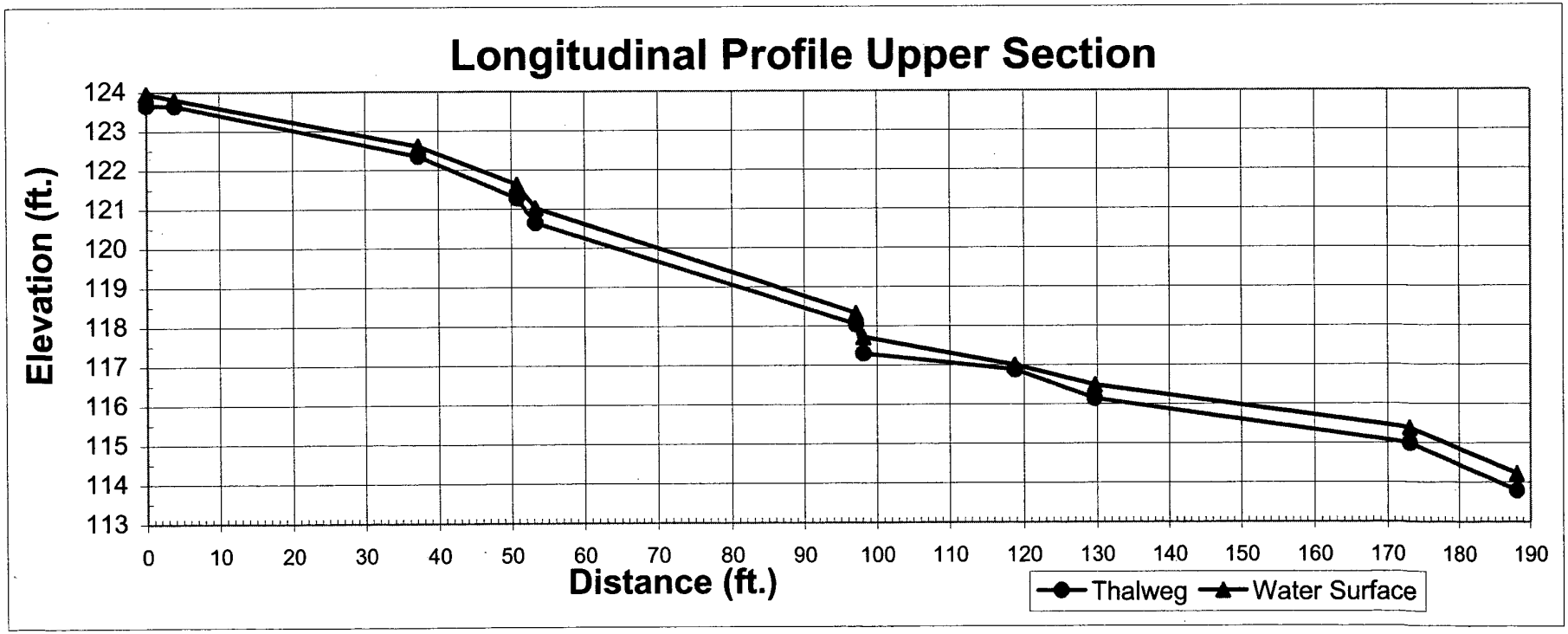
Cross sections were taken at roadway station 2+75, 8+82 and 9+00 where channel forming indicators could be seen. Those on the upper end were difficult to discern due to the grassed channel. Longitudinal profiles were taken for 200 feet downstream from station 2+40 and from station 7+95. The stream section affected by the proposed channel change lies between stations 2+40 and 9+65. The Regional Curve indicated a bankfull discharge within the range supported by Manning's Equation and flood frequency analysis for the 1 - 1.5 year return frequency. Bankful cross sectional area was increased slightly from the regional curve to compensate for a reduced slope between rock weirs. Rock weirs will be utilized for stability and vegetation will be established.

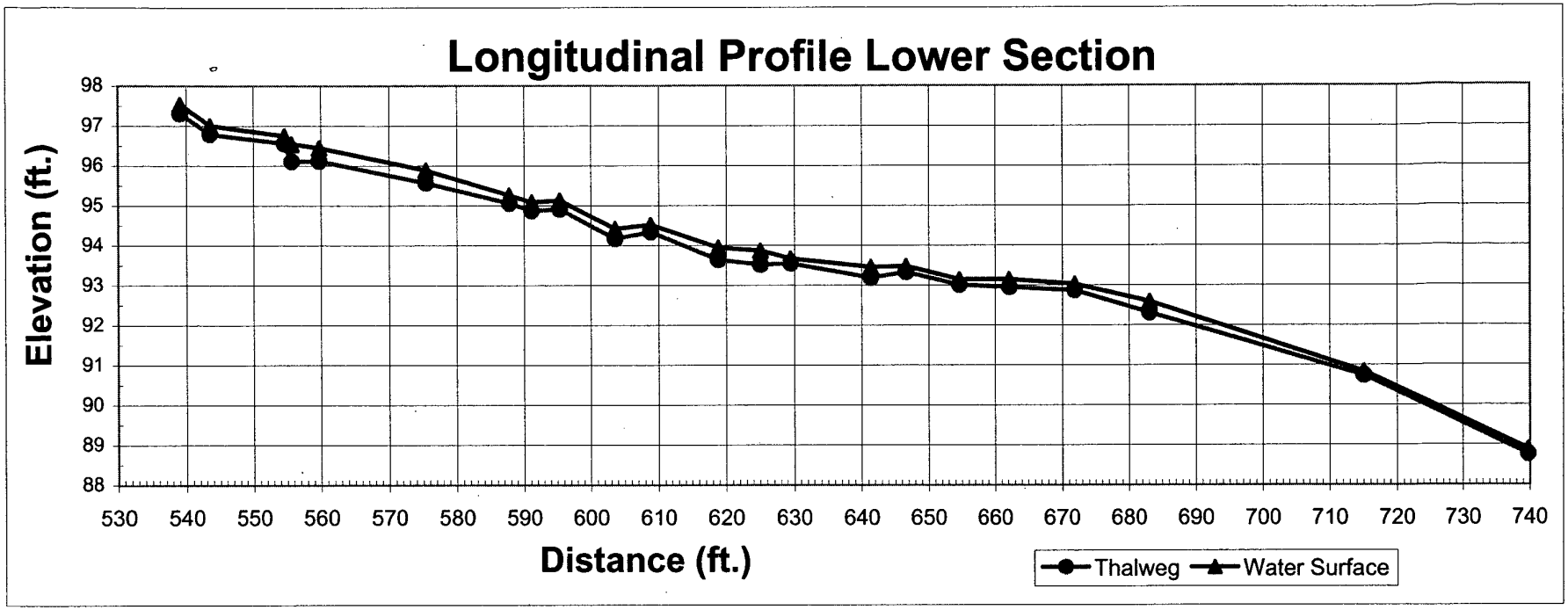
| | UPPER REACH | | LOWER REACH | |
|---|---|---|---|---|
| | Existing | Proposed | Existing | Proposed |
| Bankfull WIDTH ($W_{bkf}$): | 7.0 | 10.0 | 11 | 11 |
| Mean DEPTH ($D_{bkf}$): | 0.39 | 0.60 | 0.65 | 0.64 |
| Bankfull X-sectional AREA ($A_{bkf}$): | 2.71 | 6.00 | 6.00 | 7.00 |
| Maximum DEPTH ($d_{mbkf}$): | 0.75 | 1.16 | 1.45 | 1.3 |
| WIDTH of Flood-Prone Area ($W_{fpa}$): | 30.0 | 20.0 | 20.0 | 20.0 |
| Entrenchment Ratio (ER): | 4.29 | 2.00 | 1.82 | 1.82 |
| Width / Depth RATIO ($W_{bkf}/d_{bkf}$): | 18.1 | 16.7 | 16.9 | 17.3 |
| Overall Channel SINUOSITY (K): | existing = | 1.0 | proposed = | 1.0 |
| Thalweg slope: | 0.052 | 0.052 | 0.043 | 0.043 |
| STREAM TYPE: | B | B | B | B |

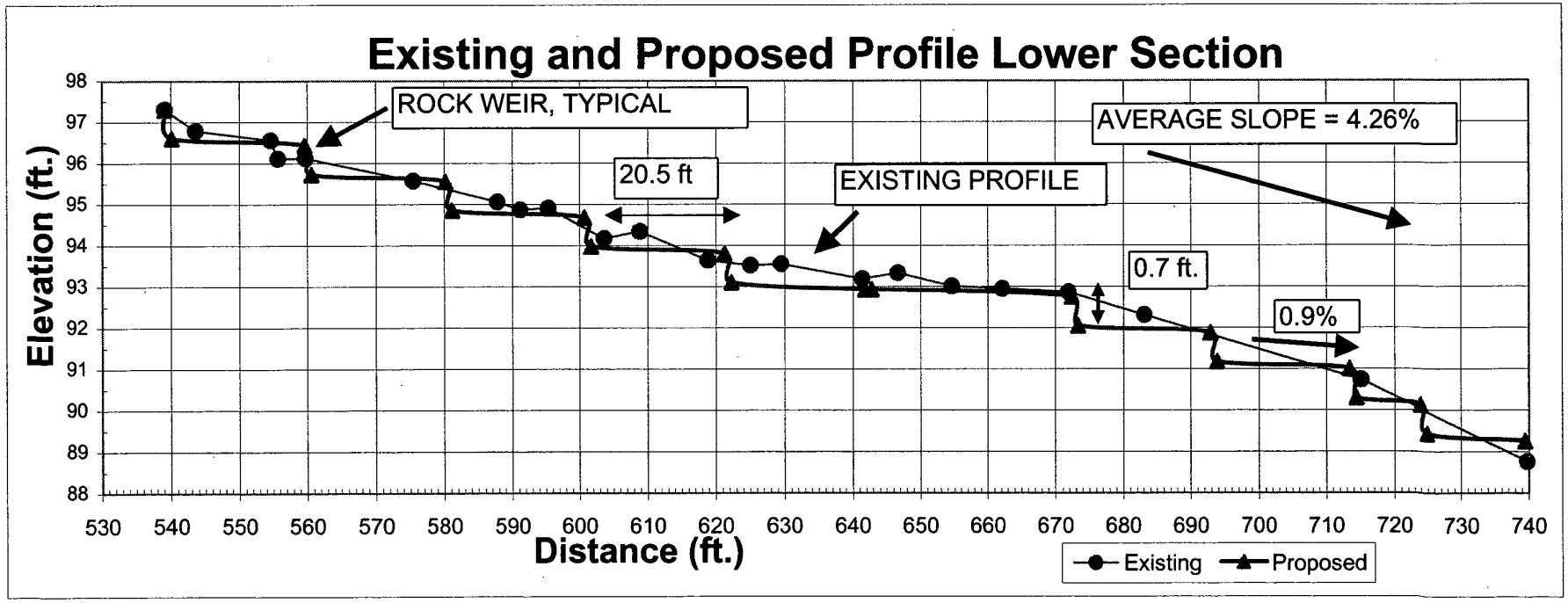
• Middle reach will be similar

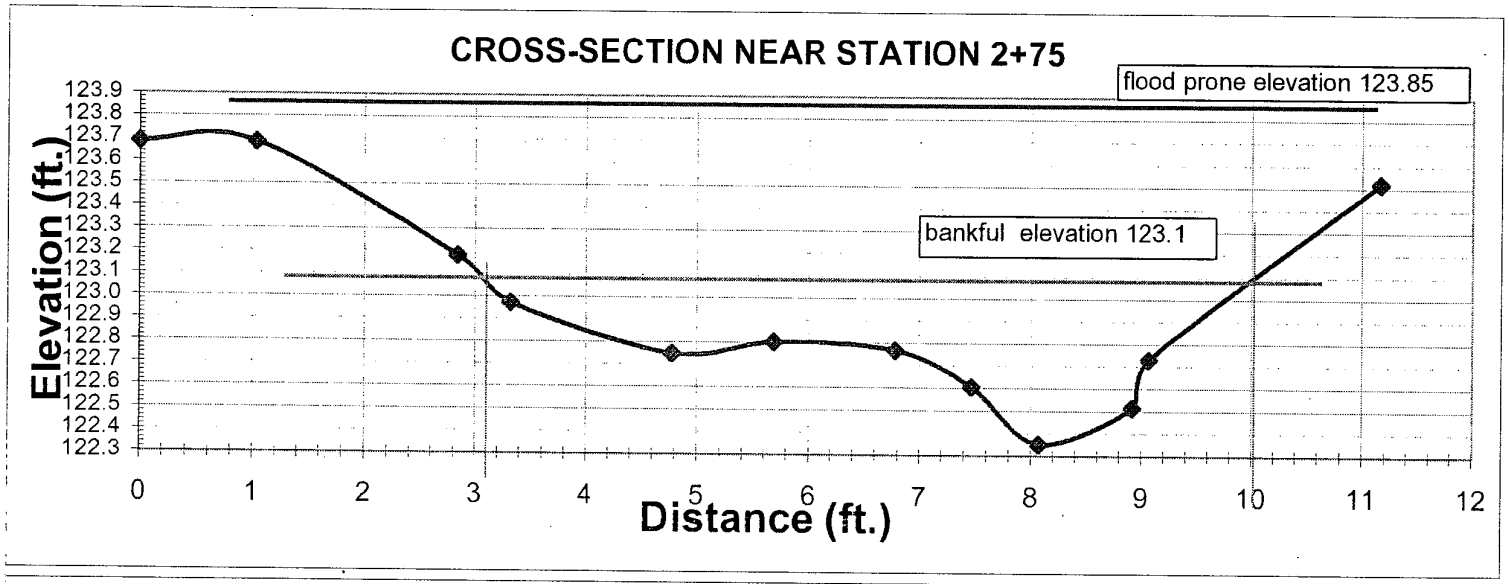
## LOCATION MAP

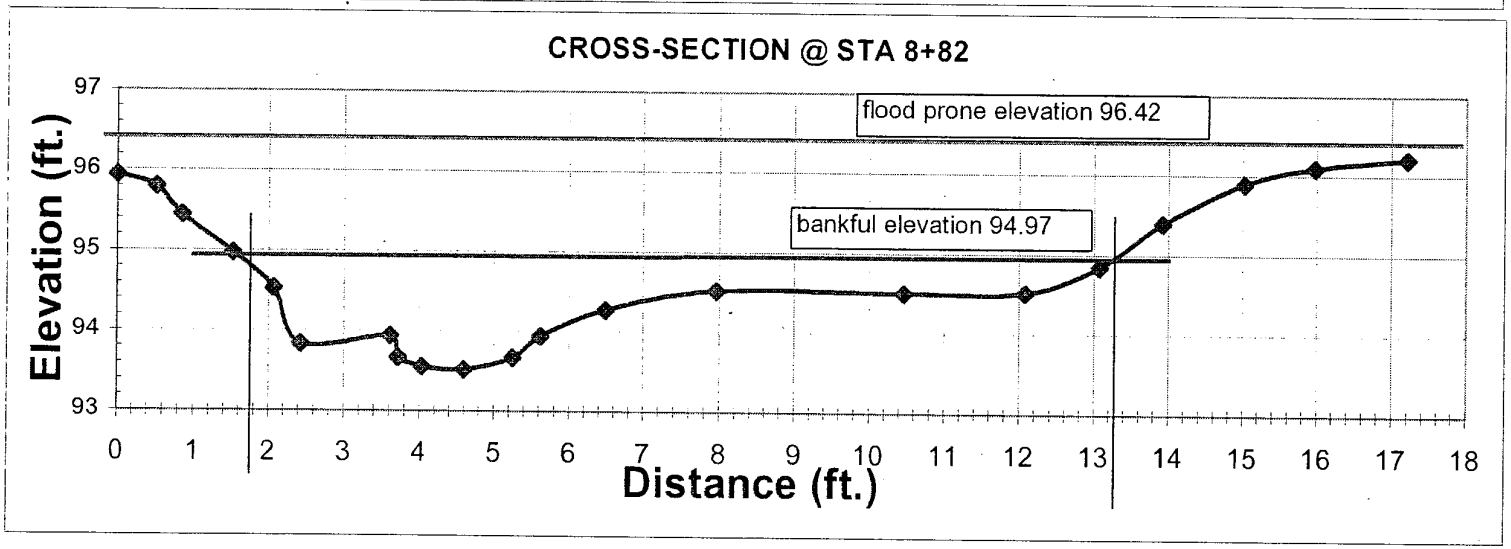

Longitudinal Profile along SR 1118
Elevation (ft.)
125
120
115
110
105
100
95
90
85
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
750
Distance (ft.)
Thalweg
Water Surface

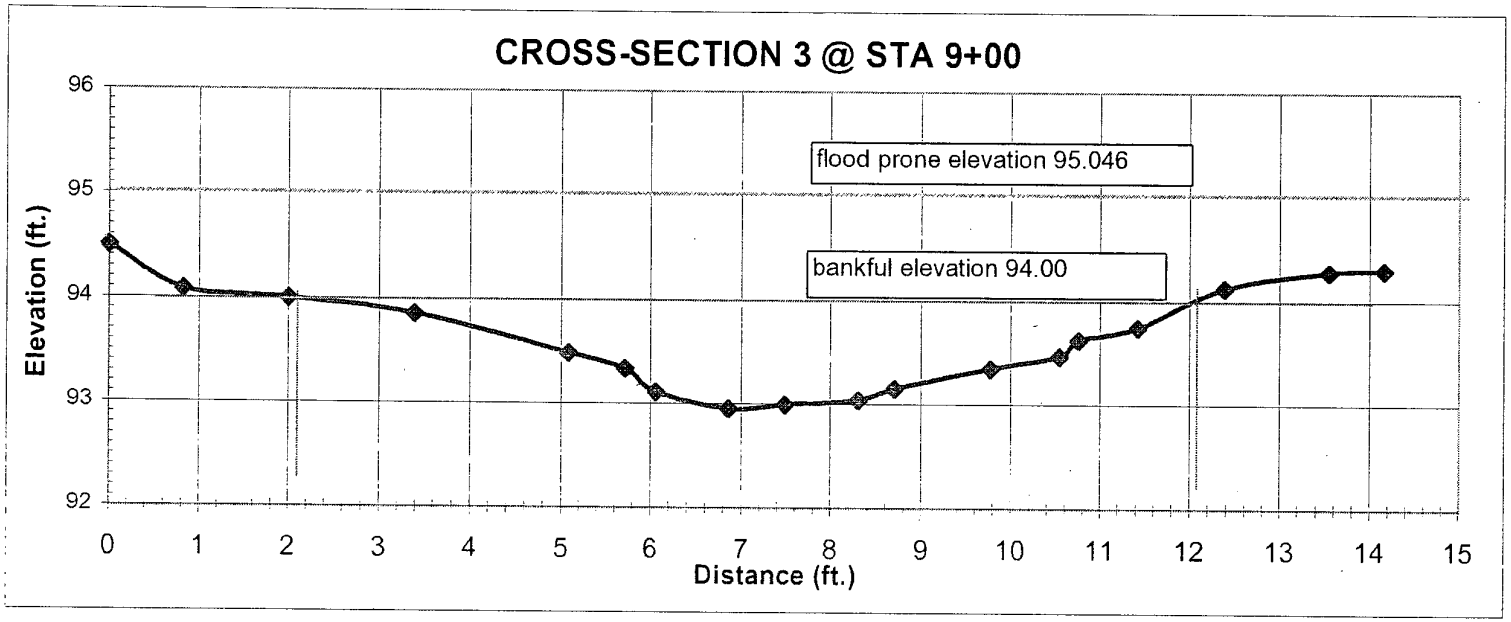

Longitudinal Profile Upper Section
Elevation (ft.)
124
123
122
121
120
119
118
117
116
115
114
113
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
Distance (ft.)
Thalweg
Water Surface

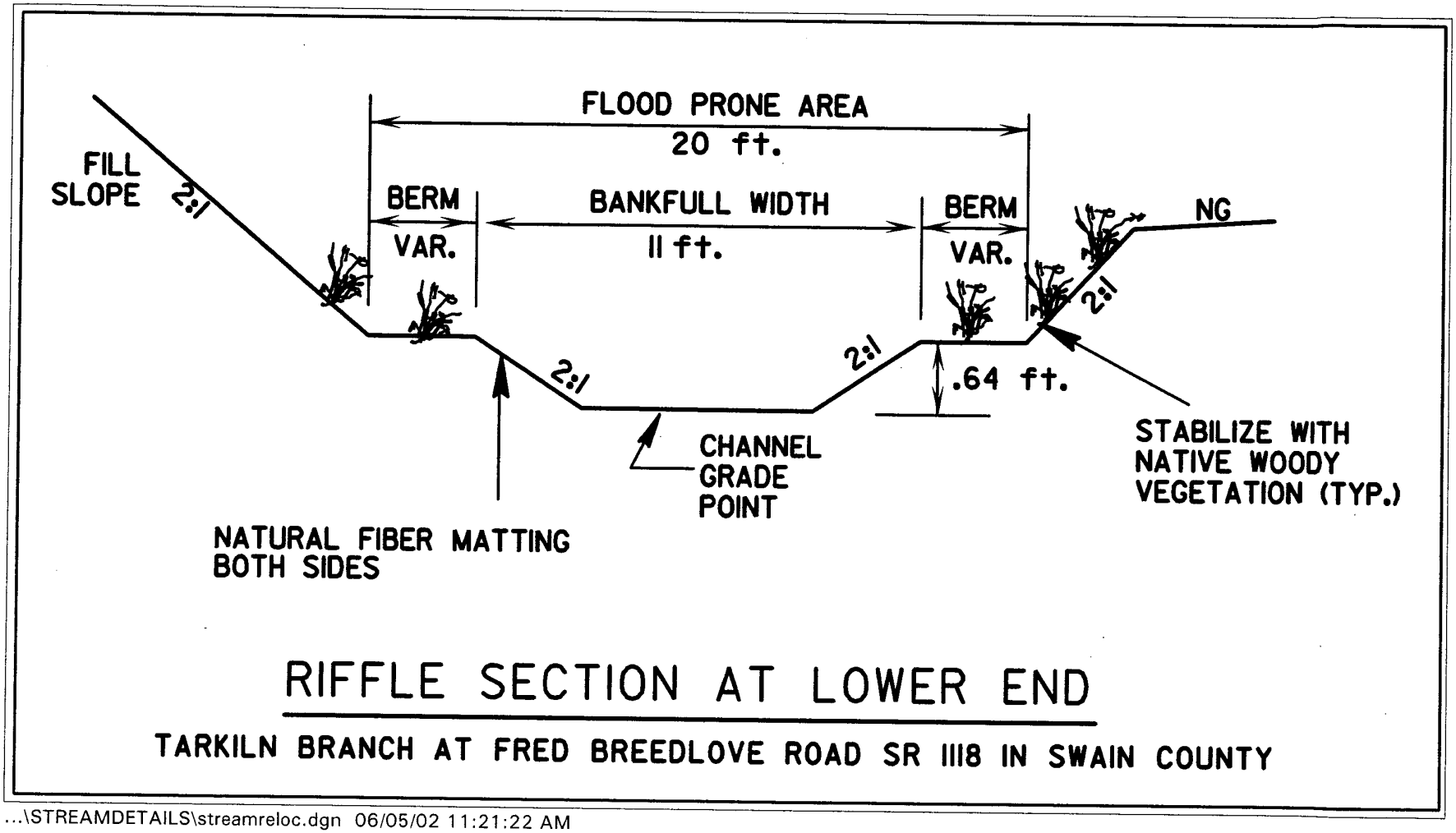

Longitudinal Profile Lower Section
Elevation (ft.)
98
97
96
95
94
93
92
91
90
89
88
530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740
Distance (ft.)
Thalweg
Water Surface


Existing and Proposed Profile Lower Section
ROCK WEIR, TYPICAL
20.5 ft
EXISTING PROFILE
AVERAGE SLOPE = 4.26%
0.7 ft.
0.9%
Elevation (ft.)
98
97
96
95
94
93
92
91
90
89
88
530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740
Distance (ft.)
Existing
Proposed


CROSS-SECTION NEAR STATION 2+75
flood prone elevation 123.85
bankful elevation 123.1
Elevation (ft.)
123.9
123.8
123.7
123.6
123.5
123.4
123.3
123.2
123.1
123.0
122.9
122.8
122.7
122.6
122.5
122.4
122.3
0 1 2 3 4 5 6 7 8 9 10 11 12
Distance (ft.)


CROSS-SECTION @ STA 8+82
flood prone elevation 96.42
bankful elevation 94.97
Elevation (ft.)
97
96
95
94
93
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
Distance (ft.)


CROSS-SECTION 3 @ STA 9+00
96
95
94
93
92
Elevation (ft.)
flood prone elevation 95.046
bankful elevation 94.00
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Distance (ft.)



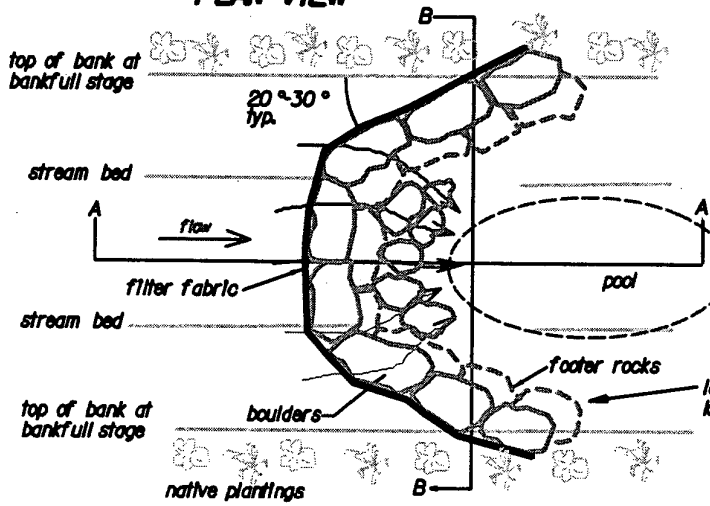

# RIFFLE SECTION AT LOWER END

TARKILN BRANCH AT FRED BREEDLOVE ROAD SR 1118 IN SWAIN COUNTY

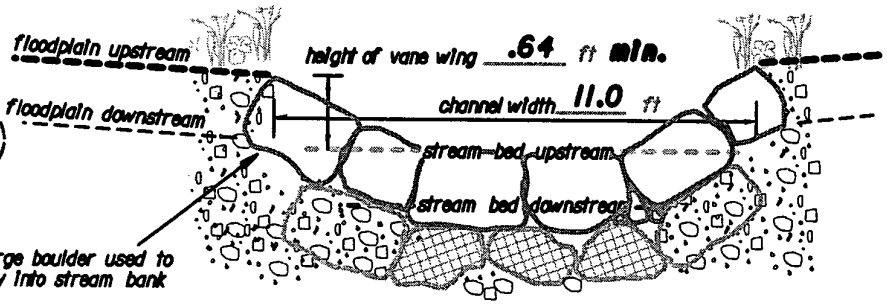
...\STREAMDETAILS\streamreloc.dgn 06/05/02 11:21:22 AM

# CROSS VANE ROCK WEIR DETAIL

## PLAN VIEW

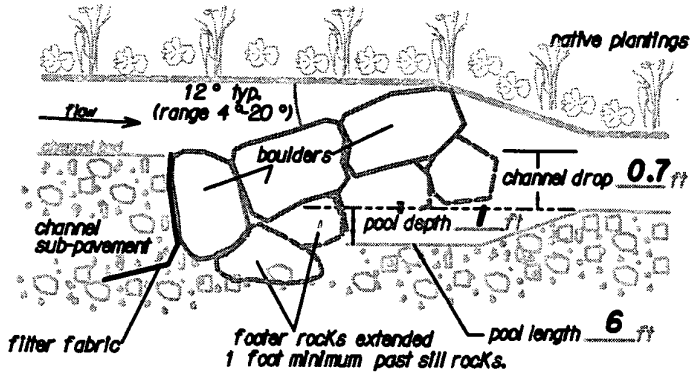



## SECTION B-B




Note: Boulders should be native stone or shot rock, angular and oblong with shortest axis a minimum of 1.0 ft. in length.

## SECTION A-A



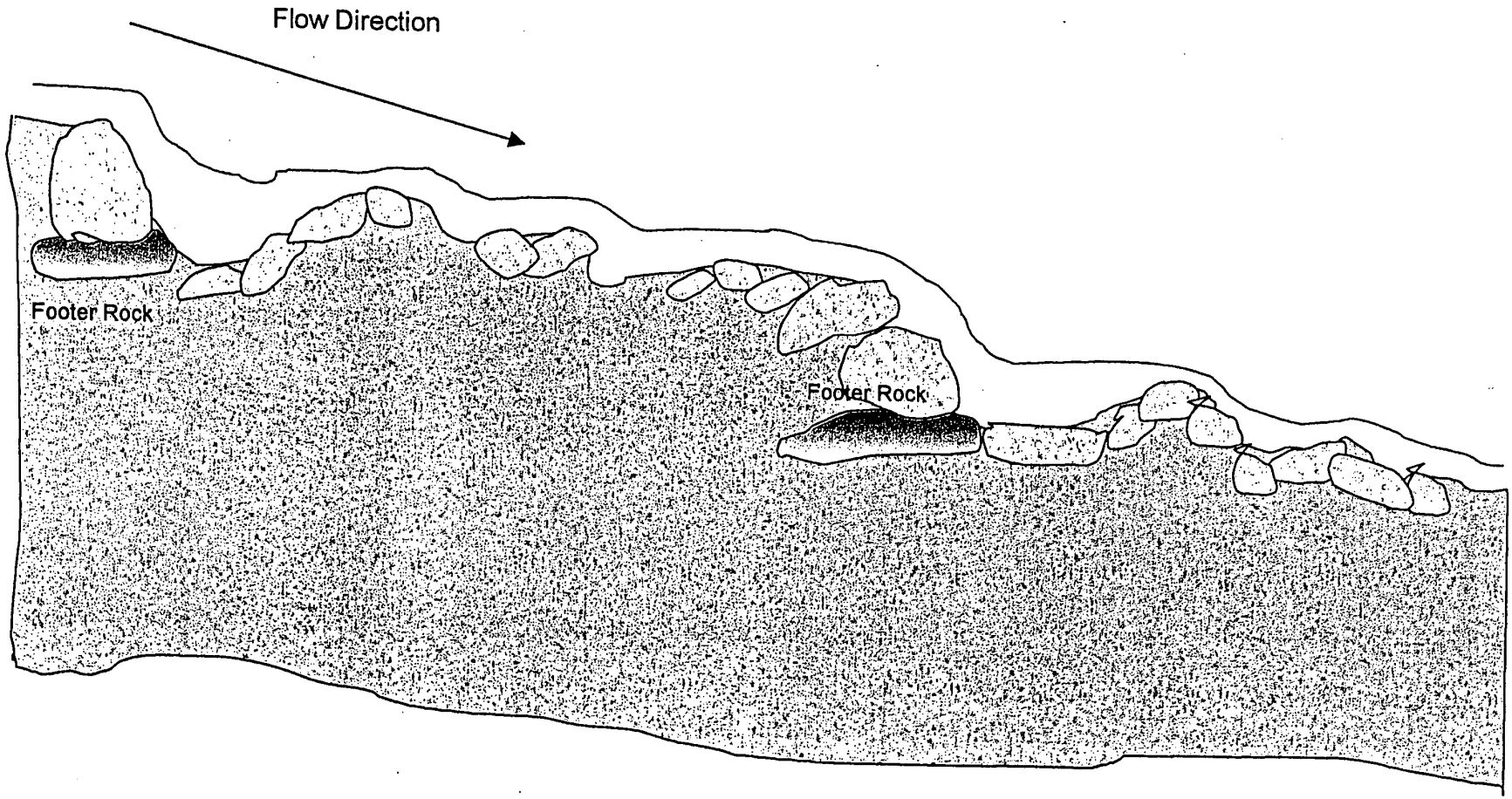

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

FRED BREEDLOVE ROAD
SR 1118
TARKILN BRANCH RELOCATION
SWAIN COUNTY

DETAIL SHEET

D:\white\Tarkiln.dgn 06/05/02 01:31:29 PM

# STEP POOL HABITAT




PROFILE VIEW

# DESIGN FOR: Fred Breedlove Road - SR 1118 - Tarkiln Branch

| Cross Section Location: | 2+75 | 8+82 | 9+00 | Total | Regional Curve | | Design | | |
|---|---|---|---|---|---|---|---|---|---|
| Reach Name or Info Source | Upper | Lower | Lower | average | Upper | Lower | Upper | Lower | Total |
| Stream Type | | B | B | B | | | B | B | |
| Drainage Area (sq mi) | 0.12 | 0.15 | 0.15 | 0.15 | 0 | 0.15 | 0.12 | 0.15 | |
| Bankfull Discharge, Qbkf (cfs) | 8 | 32 | 16 | 24 | 21 | 24 | 21 | 24 | |
| Bankfull Width, Wbkf (ft) | 7.0 | 11.6 | 10.0 | 10 | 9.4 | 10.2 | 10.0 | 11.0 | |
| Bkf Cross Sec Area, Abkf (sq ft) | 2.71 | 8.22 | 5.6 | 5.5 | 5.4 | 6.3 | 6.00 | 7.00 | |
| Bankfull Mean Depth, Dmbkf (ft) | 0.39 | 0.71 | 0.56 | 0.55 | 0.58 | 0.62 | 0.60 | 0.64 | |
| Bankfull Max Depth, Dmax (ft) | 0.75 | 1.45 | 1.0 | 1.1 | | | 1.2 | 1.3 | |
| Width Flood Prone Area, Wfpa (ft) | 30.0 | 20.0 | 20.0 | 23.0 | | | 20.0 | 20.0 | |
| Width/Depth Ratio, Wbkf/Dmbkf | 18.1 | 16.4 | 17.9 | 17.5 | | | 16.7 | 17.3 | |
| Sinuosity, Kl=Lchan/Lval | 1.0 | #DIV/0! | 1.1 | 1.0 | | | 1.0 | 1.1 | 1.0 |
| Valley slope, Sval (ft/ft) | | | | | | | | | |
| Channel Slope, Schan (ft/ft) | 0.0525 | 0.0426 | | | | | 0.0525 | 0.0426 | 0.04718 |
| Average step, ft | | | | | | | 0.70 | 0.70 | 0.70 |
| step drop/channel drop | | | | | | | 0.80 | 0.80 | 0.80 |
| Step spacing, ft | | | | | | | 16.7 | 20.5 | 18.5 |
| Number of steps | | | | | | | 11 | 10 | 39 |
| Average slope between steps | | | | | | | 0.010 | 0.009 | 0.009 |
| Valley Length, Lval (ft) | 188 | | 182 | 721 | | | 188 | 182 | 721 |
| Channel Length, Lcha.(ft) | 188 | | 201 | 740 | | | 188 | 201 | 730 |
| **RATIOS** | | | | | | | | | |
| Entrenchment Ratio, Wfpa/Wbkf | 4.3 | 1.7 | 2.0 | | | Wfpa/wbf | 2.0 | 2.5 | 2.2 |
| Bankfull mean velocity, Q/A (ft/s) | 3.1 | 3.9 | 2.9 | | | | 3.4 | 3.5 | 3.4 |
| Hydraulic radius =A/Pw=A/(2D+W) | 0.35 | 0.63 | 0.50 | | | | 0.54 | 0.57 | |
| Manning velocity between drops | | | | | | | 3.4 | 3.2 | |
| Manning Q between drops | | | | | | | 20.1 | 22.1 | |
| Tau= gamma*R*s(lb/ft2) | | | | | | | 0.4 | 0.3 | |

* Manning Equation predicts this value